From: Hedgpeth, Zach
To: WESTERSUND Joe * DEQ
Cc: ORMAN Michael * DEQ; Hunt, Jeff
Subject: RE: SCR NOx Control Cost – Four-Factor Analysis NOx Control Cost Effectiveness for GTN Station 13
Date: Friday, August 6, 2021 8:07:00 AM
Attachments: image001.png

Hi Joe,

In response to your follow-up questions:

As I mentioned, the IPM reference on page 75 of the new SCR chapter is based on data for large coal fired utilities and is not appropriate for application to smaller facilities with SCR. The cost manual states that "In general, operation of an SCR system requires only minimal, operating or supervisory labor. The SCR reactor is a stationary device with no moving parts. Further, the SCR system incorporates only a few pieces of rotating equipment (e.g., pumps, motors)." For a relatively small SCR installation, my suggestion is to start with either zero operating and supervisory labor attributed specifically to operation of the SCR, or use a small number of hours assumed dedicated to the SCR per 8-hour shift. This is similar to the cost manual approach for estimating operating labor costs for packed tower scrubbers. See page 88 of the new chapter on wet and dry scrubbers, available at https://www.epa.gov/sites/default/files/2021-05/documents/wet_and_dry_scrubbers_section_5_chapter_1_control_cost_manual_7th_edition.pdf

On your second topic, the normal cost manual approach is to use the hourly pay rate for operating/supervisory labor (i.e., an appropriate pay rate from BLS), and then to have an overall line item covering overhead. For SCR, the manual assumes overhead is zero. Here is the discussion from page 80 in the SCR chapter:

In many cases, property taxes do not apply to capital improvements such as air pollution control equipment; therefore, for this analysis, taxes are assumed to be zero [45]. The cost of overhead for an SCR system is also considered to be zero. An SCR system is not viewed as risk-increasing hardware (e.g., a high-energy device such as a boiler or a turbine). Consequently, insurance on an SCR system is on the order of a few cents per thousand dollars annually [45]. Finally, there are two categories of overhead, payroll and plant. Payroll overhead includes expenses related to labor employed in operation and maintenance of hardware, whereas plant overhead accounts for items such as plant protection, control laboratories, and parking areas. Because this procedure assumes that no additional labor is needed in operation of an SCR system, payroll overhead is zero and plant overhead is considered to be negligible.

Based on the documents submitted, if you decide to include some operating and supervisory labor attributable solely to the SCR, then I think it's reasonable to include 35% overhead as calculated from the operating and supervisory labor cost. Including any of the other components listed below would require additional documentation.

Of course, facilities are always welcome to provide documented site-specific information and request use of this data in the analysis in place of the cost manual information. The agency should carefully review any site-specific information before using it in place of the cost manual information.

I hope this is helpful,

Zach Hedgpeth, PE
206-553-1217
Pronouns: he/him/his

From: WESTERSUND Joe * DEQ <joe.westersund@deq.state.or.us>
Sent: Thursday, August 5, 2021 11:52 AM
To: Hedgpeth, Zach <Hedgpeth.Zach@epa.gov>
Cc: ORMAN Michael * DEQ <michael.orman@deq.state.or.us>; Hunt, Jeff <Hunt.Jeff@epa.gov>
Subject: RE: SCR NOx Control Cost – Four-Factor Analysis NOx Control Cost Effectiveness for GTN Station 13

Thank you, Zach.

A couple of followups:

- We discussed that a usual assumption for labor associated with a control device like an SCR at a small facility would be 30 min per 8 hour shift. Could you point me to a reference for that?
- I found some wage categories that I think might be appropriate for operator and maintenance labor and supervisor labor. How would benefits usually be accounted for in these calculations? The email TCE provided says that "Our Corporate Support rate is currently 35%. It is applied to Salary, related benefits, Redistributed Salaries, and Contingent Workforce costs." so it may not be fair to apply that only to the salary.

-Joe

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From: Hedgpeth, Zach <Hedgpeth.Zach@epa.gov>
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Cc: ORMAN Michael * DEQ <michael.orman@deq.state.or.us>; Hunt, Jeff <Hunt.Jeff@epa.gov>
Subject: RE: SCR NOx Control Cost – Four-Factor Analysis NOx Control Cost Effectiveness for GTN Station 13

Here are my notes as we discussed during our call today:

Notes:

- Did GTN provide data on NOx control efficiency cases cited? They will need to make the case 90% is not achievable. Vendor quote for 90% is problematic for them. Vendor should consider actual operating conditions and let us know if 90% is not achievable. Three vendors should have been engaged.
-
- Labor citation from pg 75 is from the IPM (large coal boilers).
- Doubtful operator will be paid $100/hr or more. Use actual pay rate, then 35% overhead is ok.
- "Testing and QA/QC" costs – did they provide documentation for the costs and why this is expected to occur for unit 13?
- Admin formula incorrectly references supervisor labor, should be operator labor per eq. 2.69 on pg 80 of new SCR chapter.
- Property tax and insurance – must provide documentation.
-
- Catalyst life issue – Aerinox guarantee is different than actual expected life. Cost manual cites typical 3 year vendor guarantees, but actual life data indicates they last far longer in gas applications. (pgs 29 and 77 of new SCR chapter).
- SCR equipment life range is 20-40 years. Use 30 years unless there is a specific reason shorter lifetime is expected. What specifically will shorten life in this case?
-
- NH3 usage rate in spreadsheet is for 75% per vendor quote from 6/24/21.
- NH3 quote is for $1.0062/gal, so why is $1.05 used?
- Does NH3 quote include fuel surcharge for long distance delivery?

Here's the labor rate lookup link I mentioned. Browse around to look at different job categories.
https://www.bls.gov/oes/current/oes_stru.htm

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Subject: RE: SCR NOx Control Cost – Four-Factor Analysis NOx Control Cost Effectiveness for GTN

Station 13

Hi Zach,

Here's the most recent DEQ cost analysis we provided to the company- see attached.

-Joe

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Subject: RE: SCR NOx Control Cost – Four-Factor Analysis NOx Control Cost Effectiveness for GTN Station 13

Joe,

Could you send me your most recent estimate (spreadsheet) that you provided to the company? Comparing would help me to quickly see their changes.

Thanks,
Zach

From: WESTERSUND Joe * DEQ <joe.westersund@deq.state.or.us>
Sent: Wednesday, August 4, 2021 10:05 AM
To: Hedgpeth, Zach <Hedgpeth.Zach@epa.gov>
Cc: ORMAN Michael * DEQ <michael.orman@deq.state.or.us>; Hunt, Jeff <Hunt.Jeff@epa.gov>
Subject: FW: SCR NOx Control Cost – Four-Factor Analysis NOx Control Cost Effectiveness for GTN Station 13

Hi Zach,

DEQ is looking to wrap up our discussions with TC Energy about SCR costs for Compressor Station #13.

TC Energy has submitted an updated cost estimate (attached). The company questioned the lower

administrative charges and zero overhead, property taxes and insurance costs that we included in our most recent estimate based on the cost control manual. They provided limited support for their new estimates for those figures- an email that says that their "Corporate Support rate is currently 35%" and that other numbers are based on "TCE internal review and quote". TC Energy also based their latest estimate on an SCR lifetime of 20 years, not 30.

Would you have time to meet with Michael and I one more time to discuss?

Timing wise, DEQ has a meeting with TC on Friday morning, and a deadline of Monday COB to issue a unilateral order if no agreement is reached and DEQ chooses to move forward to require SCR install.

-Joe

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From: Melinda Holdsworth <melinda_holdsworth@tcenergy.com>
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Cc: Ruth Jensen <ruth_jensen@tcenergy.com>; Jon Adamson <jon_adamson@tcenergy.com>; Jill Holley <jill_holley@tcenergy.com>; Mike Hatchett <mike_hatchett@tcenergy.com>; James McCarthy <jamesmccarthy@comcast.net>; David C. Weber <DWeber@bdlaw.com>
Subject: SCR NOx Control Cost – Four-Factor Analysis NOx Control Cost Effectiveness for GTN Station 13

Michael and Joe –

Please find enclosed a memorandum and accompanying spreadsheet from our consultant, Innovative Environmental Solutions, Inc. (IES), regarding the cost-effectiveness analysis for GTN's Station 13, Units 13C and 13D. Also attached are a number of documents that are referenced in IES's memorandum.

In conducting its four-factor analysis, DEQ directed GTN to rely on EPA's Guidance on Regional Haze State Implementation Plans for the Second Implementation Period, and EPA's Air Pollution Control Cost Manual.

These guidance documents make clear that DEQ's review of a regulated party's four-factor analysis

should prioritize site-specific information. For example, the Control Cost Manual recognizes that EPA's methodology for calculating cost-effectiveness is "more accurate when using detailed site-specific information." Consistent with DEQ's instructions for conducting its four-factor analysis, GTN followed EPA guidance by conducting site-specific analyses across a variety of subject matters that reflect the real-world application of SCR as applied to Station 13 Units 13C and 13D.

The analysis contained in the IES memorandum, supported by the attached Excel spreadsheet, demonstrates that SCR installed at Station 13, Units 13C and 13D, is not cost effective because it exceeds the $10,000 per ton threshold.

GTN desires to continue to work cooperatively with DEQ to supply it with accurate site-specific information where available, such that DEQ can evaluate GTN's analysis in accordance with the above EPA guidance documents.

We look forward to our scheduled call this Friday to discuss the enclosed information.

Thanks,

Mel Holdsworth

List of Attachments

- Memorandum from IES, dated August 2, 2021
- Excel spreadsheet for Units 13C and 13D
- Attachment A (June 2021 Station 13 AeriNOx quote)
- Attachment B (March 2021 Station 12 AeriNOx quote)
- Attachment C (March 2021 IES memo)
- Attachment D (March 2021 Airgas quote)
- Attachment E (Corporate Support Rate)

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